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BEET SUGAR AND THE TARIFF

For the first time in two decades and for the second time in half a century, a Democratic administration, with a majority in both branches of Congress, is attempting tariff revision. As in 1894, the majority in the Senate is very small, and this narrow margin threatens to be broken now, as then, upon the issues of sugar and wool. It is because of their fiscal and political importance that the struggle centers around these two schedules.

Though the present situation shows a number of striking resemblances to that of 1894, still there are fundamental differences. Since that time there have been great changes in agricultural and industrial development. The changes in the sugar world, both in the consumption and in the sources of supply, have been among the most rapid of all. In few countries has this been more marked than in the United States.

In 1894, our total consumption was two million long tons (2,240 pounds) of sugar; in 1912, it was three and a half million tons, an increase of 75 per cent. In the former year it was 66.6 pounds per capita; in the latter, 81.3 pounds. Then Cuba, the Philippines, and Porto Rico were foreign territory; now they are under our flag or protectorate, with enormously increased sugar outputs. Then we imported considerable quantities of beet sugar from Europe; now we import practically none from this source nor from any other that obliges us to pay full duty. Then our domestic beet-sugar industry had barely begun and had an insignificant output of 20,000 tons; in 1912-13, its output was 625,000 tons. In striking contrast to this, the Louisiana production of cane sugar has remained stationary and is now less than half the domestic beet-sugar output.

What is the significance of this remarkably rapid development of our domestic beet-sugar industry? What is its relation to our changing agricultural and industrial conditions? How would it be affected, if it were affected at all, by the proposed changes in the tariff? Moreover, are the great mass, or any considerable number

of the citizens of the United States really very much concerned one way or another? Partisans of the beet-sugar industry and their allies, and partisans of free sugar give very different answers, and, as is usually the case, it is difficult for a layman to arrive at a satisfactory knowledge and conclusion of the matter. Furthermore, many important considerations involved regarding the beet-sugar industry do not lie upon the surface; they are much more complex than would seem at first thought or upon casual consideration. It will appear, as we proceed, that legislation has been a controlling factor determining the development of the sugar industry of almost every country, often rivaling economic factors in importance, a fact true of sugar in a peculiar degree.

In order to appreciate the problems involved, it is desirable to take at least a hasty glance at the development and situation of the present industry. Believing in the superiority of American soil and inventive ingenuity, and with imaginations aroused by the remarkable achievements of the European industry, Americans have made repeated attempts, beginning at least as early as 1830, to establish beet-sugar manufacture in nearly all sections of the United States.

The world's beet-sugar industry was literally established by the famous imperial decree of Napoleon issued during the Continental blockade in 1811. The story of the scientific experiments and encouraging legislation and the gradual, but steady, promotion and development of this industry, reads almost like a romance. By the end of the nineteenth century, beet-sugar had surpassed its great rival, cane sugar, and its production stood as two to one compared with that of cane. The peculiar and characteristic factor favoring the scientific experiments which caused such great development was the system of tariffs accompanied by a system of excises, the latter being laid in such a manner—usually upon the weight of the beets, or juice extracted therefrom, or on the estimated capacity of manufacturing machinery—that every inducement was offered to escape taxation by improvement of beets, processes of manufacture, and efficiency of machinery. This has resulted in trebling the sugar content of the formerly unknown beet and increasing the yield of refined sugar per acre in even greater proportion.

It is no wonder there were so many attempts to establish the industry in the United States during all these early years. But, up to the time of the cane-sugar refiners' formation of the original sugar trust in 1887, only one attempt had been successful enough to survive, that at Alvarado, Cal. Oxnard Brothers, with their Brooklyn refinery, went into the original trust, but two of them soon severed connections, and one of these, Henry T. Oxnard, went to Europe to study the beet-sugar industry. He returned in 1888, organized a corporation (the predecessor of the present American Beet Sugar Co.), appeared before the Ways and Means Committee in 1889 seeking protection for the new industry, and in 1890 erected a beet-sugar factory at Grand Island, Neb.

The McKinley bill of 1890 was the first national legislation to recognize and encourage the beet-sugar industry by a manufacturers' bounty of two cents per pound to continue fourteen years, and by provisions for free importation of beet seed and sugar machinery. The bounty was a device to afford protection and, at the same time, to cut the revenue at both ends and thus maintain the high protective tariff policy which was then threatening to topple over under the weight of the troublesome surplus.

In the meanwhile, Claus Spreckels, the "Hawaiian sugar king," erected a beet-sugar factory in California, the Oxnard Co. erected one more in Nebraska and one in California (1891), and in the same year, T. R. Cutler and other Mormons erected one in Utah. Two or three other factories were built about this time and most of them survived, though one of the Nebraska factories was moved to Colorado in 1905.

But besides the unavoidable and serious difficulties of establishing a highly technical industry which was new as regards both its promoters and its field of operations, the beet-sugar producers were confronted with questions of constitutionality as to both state and federal bounties. They soon lost the former in some cases and the Wilson bill of 1894 repealed the federal bounty and substituted an ad valorem tariff rate of 40 per cent, plus a half-cent per pound differential for refiners, thus giving much less protection to the domestic industries.

As a result of the loss of bounties and the financial depression

of the period, only one more factory was built before 1897 and it "proved an immediate and disastrous failure, owing to ill-conceived plans and inexperience." The Dingley tariff of 1897 increased the duty on refined sugar to \$1.95, per hundred pounds, and on 95-degree centrifugals to \$1.65, and provided for complete countervailing of all foreign bountied sugar. These rates have been in effect ever since, except for concessions to Cuba and our insular possessions and except the insignificant reduction from \$1.95 to \$1.90 on refined by the Payne-Aldrich bill of 1909.

Six factories had been built prior to 1897. Within about two years after the passage of the Dingley bill, twenty-four new factories were erected, exactly half (twelve) of which failed. In the two years 1900 and 1901 ten more new ones were built. These had a similar record. The stimulus of the new tariff and of rising prosperity apparently caused too much haste and the disregard of sound practical considerations, though such new industries suffer peculiar risks in their establishment.

A 25 per cent concession in duties and other favors were given to the Philippines March 8, 1902, and a 20 per cent concession to Cuba December 27, 1903, with dire predictions from the domestic beet-sugar interests that it meant their destruction. However, from 1902 to 1906, inclusive, thirty-seven new factories were erected, the smallest number in any one year being four in 1904. It was near the beginning of the latter period that H. O. Havemeyer, for himself, personally, and for the trust, officially, began extensive operations in acquiring the stock of existing beet-sugar factories, in the erection of others, and in the alleged forestalling and preventing of similar activities by independents.

Since the panic year of 1907, comparatively few factories have been erected, though there has been some increased activity during the past two or three years. Seventy-three factories were in operation during the season just closed, three others were idle, and one new one is now in process of construction. Plans for other new factories and for the removal of a few old ones are being held in abeyance, pending tariff legislation. Of the factories erected since 1902, comparatively few have failed, thus showing a better adaptation and improvement of the industry.

Our seventy-seven existing factories are located in sixteen states with four principal centers, namely, Michigan (16), Colorado (17), Utah-Idaho (12), and California (13). In 1912-13, Colorado led in sugar production, with California, Michigan, Utah, Ohio, Nebraska, Idaho, and Wisconsin following in order. California produces the beets richest in sugar, though Montana rivals her, and Colorado, Utah, and Idaho are comparatively well adapted to the industry. Michigan and surrounding states have the advantage of lower wage rates than the western states and no expense for irrigation.

In 1912, there were about 600,000 acres in the United States devoted to beets. The Department of Agriculture has estimated that this country has at least 274,000,000 acres of land adapted to sugar-beet production. Four million acres at the present yield would supply our entire present sugar consumption. To devote to sugar production 4,000,000 of the 290,000,000 acres now producing cereals and hay would affect our cereal and meat production in an insignificant degree, even if yields of the latter were reduced in proportion to reduction in area. Investigations, however, have shown that beet culture results in increased yields of other crops grown in rotation; hence there would be a net gain, rather than a loss, on this score.

The average yield per acre of beets harvested for the past ten years has been about 9.7 short tons (2,000 pounds). There has been an increase of about a ton per acre during this time. The sugar content of the beet has improved slightly, also, so that we now get about 240 to 250 pounds of sugar per short ton of beets, or about 2,400 to 2,500 pounds per acre harvested, as compared with about 2,000 to 2,100 pounds ten or twelve years ago. The average price paid the farmers for beets in the United States, as reported by the Department of Agriculture, has increased from about \$4.10 per short ton in 1897 to about \$5.80 at the present time.

In Germany the average yield of beets is about a third larger than ours and the sugar content about a fourth richer, so that her sugar yield per acre is about 50 to 60 per cent greater than ours. The price of beets is lower in Germany than in the United States, and German factories, on account of this lower price for richer

beets, get their raw material very much cheaper than do the American factories. The difference in the cost of the finished product is from half a cent to a cent per pound, averaging approximately three-fourths of a cent per pound. The French tonnage is higher than the American, but the sugar extraction is lower, so that the yield of refined product per acre is about the same as in the United States, though the price per ton of beets is lower.

It is in the cost of raw material alone that the best beet-sugar producers of the world, those of Germany, have any important advantage over American manufacturers. American factories operate upon a larger scale than those of any other country, and investigations have shown that the larger the factory the cheaper the unit cost of product.

The relative importance of this cost of raw material to other costs of production is made apparent by the United States Census data, which show that, in 1909, the total expense of beet-sugar manufacture was distributed as follows: salaries 4.7 per cent; wages 12.9 per cent; materials 73 per cent; miscellaneous expenses 9.4 per cent. All "materials" represented 73 per cent of the cost; "beets" represented about 60 per cent of this, and "fuel," the next largest item, only a tenth as much.

A careful examination of a large amount of available data, unsatisfactory though they be, indicates that the average total cost of producing granulated beet sugar at the American factory is between \$3.00 and \$3.50 per hundred pounds. Of this about \$2.30 is for the sugar in the beets and about \$1.00 for the manufacture. German manufacturing costs are about the same as American, but total costs are lower by differences approximating the differences in cost of raw material, that is, equivalent to about three-quarters of a cent per pound.

But it is not European beet sugar that the United States beet sugar has most to fear. Since the Spanish-American War, at least, whenever either European or American producers think of real competition, they think of the cane sugar of the tropics and especially of Cuba. Since the granting, in 1903, of the American concession of 20 per cent of tariff duties, the sugar output of Cuba has increased from 1,000,000 to 2,250,000 long tons and is now $2\frac{1}{4}$

times as great as it was at that time. Cuba has become the largest exporter in the world, supplying half the United States consumption, that is, practically all that is not supplied by insular possessions and domestic industries. Her output has recently grown to the point where she cannot dispose of it all, even in the preferential markets of the United States; hence she is forced to forego a large part of the concession on most of what she markets. Of course, prices of all sellers in United States markets, including domestic producers, have been reduced to the same extent for the same reason.

Cuba is very bounteously endowed by nature for sugar production. She grows large crops of rich cane which ratoon year after year without replanting. Her soil and climatic conditions are superior to those of other countries. As yet only a small part of her lands suitable for sugar culture has actually been planted to cane. Her modern sugar plantations, including their mills and systems of production and marketing, can, at present, under the financing and management of Americans and Europeans now interested in the island, produce sugar more cheaply than Germany or any other important beet-growing country; indeed, the cost is even below that of any other large cane-sugar exporting country, unless it be Java.

Furthermore, although the Cuban industry can now produce sugar more cheaply than the United States beet-sugar industry, by probably the equivalent of about a cent per pound of granulated, and a quarter of a cent below the best producers of Europe (Germany), and although the investment of foreign capital has brought about great improvements during the last decade, nevertheless it seems almost certain that the process of expansion and improvement—not alone as regards area but also as regards agricultural methods, transportation, marketing, and labor supply—is just beginning. To be sure, there may be serious economic and political obstacles to be overcome, but it cannot be denied that, with a fair field and no favor, Cuban sugar has great possibilities.

The area of the Philippines is two and a half times that of Cuba, but the present sugar production of the islands is relatively small

and their possibilities are more problematical. It is not at all probable that development in these islands can, or will, be as rapid as in Cuba, but facts that are available indicate that the country is well adapted to sugar production. There is even the suggestion of the possibility, if not the probability, that the output of the islands might in time be made to surpass even that of Cuba if permanent free entry to the United States market, coupled with the exclusion of the product of Cuba and other foreign countries, were secured. The experience of Java under the Dutch, of Formosa under the Japanese, of Hawaii and Porto Rico under American ownership indicates the great possibilities of American exploitation of the tropics. For example, Porto Rican output has increased thirteenfold in the last thirteen years. Hawaii made nearly equally rapid strides and, though for ten years it has been stated repeatedly that she has reached her limit, nevertheless, her production continues to increase.

Can the United States beet-sugar industry make sufficient improvements to compete with Cuba, or has it sufficient indirect advantages to offset its disadvantages? We are very far behind Europe in the matter of seed selection, breeding, and adaptation; likewise in the utilization of by-products; even more so in the matter of crop rotation. In the matter of improvement of seed, we have just begun, and it will take many years to produce varieties perfectly adapted to our needs. We have made some improvements in both agricultural and manufacturing machinery and now have new unperfected inventions that promise much. It seems probable that our costs can be reduced considerably.

The greatest and most immediate improvements could be brought about comparatively easily by better systems of crop rotation. Careful and comprehensive German investigations have shown that the deep stirring of the soil and the careful cultivation necessary for growing beets and similar root crops result in greatly increased yields of wheat, oats, and nearly all the crops following in rotation, this increase usually averaging 20 to 30 per cent and being in addition to increases due to Germany's general intensive system of agriculture. We have been so negligent, or so pressed with other matters, that we have no comprehensive data upon the

subject, but the little we do have indicates that we might secure similar results. Beets furnish a crop, not in substitution of, but in addition to, all other root crops which our markets will justify without the latter's narrow market limitations.

Most beets in the West are grown under irrigation where agriculture is comparatively new and still largely in the experimental stage. Each beet-sugar factory employs a corps of agriculturalists who spend most of the growing season visiting the beet fields and advising the farmers, not only as to their beet crops, but also as to crops grown in rotation and, incidentally, about many other of the farmer's problems. It has been claimed that every sugar factory is a sort of local agricultural college and there is no doubt that it greatly improves and stimulates the agricultural efficiency of nearly every community it enters.

Beets not only add to the diversity of crops in sections sorely in need of such, but also furnish relief to land too long continued under small grains and grasses. It is recognized that a crop requiring frequent stirring of the soil forms an almost indispensable part in a rotation series. The high altitudes of the West are not adapted to corn for this purpose, nor are the expensive irrigated lands usually profitable under the extreme system of extensive agriculture common to many parts of the United States. Furthermore, in these sections where corn is not grown, the sugar by-products are the more valuable as substitutes for corn and other stock food.

In the light of the facts mentioned above, as well as of others that lack of space forbids mentioning, what will be the effects if the pending tariff rates on sugar are enacted into law? As will be recalled, the present rate upon refined sugar is \$1.90 per hundred pounds; that upon 95-degree centrifugals, \$1.65, or \$1.32 for Cuba. The pending bill proposes a reduction of one-fourth the duties immediately, and free sugar after May 1, 1916.

Notwithstanding many statements to the contrary, the balance of evidence goes to show that a lowering of the tariff on sugar results in an approximately equivalent lowering of prices to consumers. The effective tariff today is not \$1.90, because Cuba's large production (partly favored), in addition to our own untaxed

supplies, more than equals our consumption and depresses the market very much, especially during the height of the milling season. However, this high duty on refined does allow the refiners to take a part of the difference, though not all of it, because of some present competition between them. For these reasons, it is probable, as is shown by calculations made elsewhere¹, that the present effective tariff upon refined sugar is about \$1.50 to \$1.65 per hundred pounds. The beet-sugar factories would have the protection of freights, also, varying with location from nothing to, say, \$.75 per hundred pounds, the more common amounts being \$.20 to \$.35.

From these facts, it appears that the average beet-sugar producer in the United States, would be on about equal terms of competition in the matter of direct, or absolute, costs if the tariff were reduced one-half. Those nearer the margin than the average producer, on account of less protective freights, or poorer quality of beets, or higher manufacturing costs, or other reasons, could stand less of a cut. The reverse would be true of those relatively advantageously situated.

In many cases the cost of beets necessary to produce a hundred pounds of sugar is greater than the cost of the Cuban refined product, so that some factories would probably try to get the farmers to grow the n for less. This would not be possible where competition with other crops prevented, though the withdrawal of much land from beets and the planting of it to other crops might lessen the profitableness of the latter in many cases, particularly if grown for local markets. On the other hand, the indirect benefits of beet culture would be an important consideration checking withdrawal from the industry.

The growing of beets is *prima facie* evidence that they are more profitable than crops which could be substituted for them and that farmers' land values would suffer by the capitalized amount of superior profits thus afforded upon the acreage that would be withdrawn. This would not be true to the same extent in communities where beet culture is new—and these regions form a large propor-

¹ Blakey, *The United States Beet-Sugar Industry and The Tariff*, Columbia University Studies in History, Economics, and Public Law, No. 119, 1912, *passim*.

tion of the total—that is, where the agricultural and manufacturing problems have only begun to be adjusted. On the other hand, these communities have not yet received, or recognized, the importance of the indirect advantages, nor do they know the extent of probable improvements.

The selection and adaptation of seed and the making of other improvements that have already been mentioned are not the only matters requiring time. Farmers are naturally conservative and do not readily turn from the crops and methods of a lifetime to others radically different. Hence, there is often considerable initial difficulty in securing a sufficient acreage in a community to justify the erection of a factory large enough to operate economically. After the erection of the factory, it takes several years for the growers to become thoroughly acquainted with the best methods of the new culture in all of its various phases, including its adaptation to their particular soils, climatic conditions, and crop rotations. On account of the expenses and risks thus involved as regards both grower and manufacturer, it can be seen that the establishment of the industry in any community, and its further growth therein, must take considerable time, and that any radical tariff changes must check the possible development, particularly in the newer fields of the industry.

If sufficient improvements looking toward reducing cost, or sufficient indirect benefits to offset direct disadvantages do not exist, or cannot be brought about within reasonable time; in other words, if the cost of protection will result in no ultimate net gain, it should be removed. In the matter of direct costs, it is not at all probable that improvements can be made rapidly enough to meet Cuban costs, and from that standpoint it is most probable that United States consumers would get cheaper sugar permanently by putting it on the free list. The probabilities of rapid expansion of the domestic beet industry, so as to meet the needs of our entire consumption, even if we continue the present protection, are small as compared with the probabilities in Cuba if sugar were put and kept on the free list.

On the other hand, if the possible improvements in the domestic industry are taken in connection with the indirect benefits, there

may be a sufficient net gain thus accruing to the United States to justify a reduction sufficiently gradual to permit the necessarily gradual development of the more important of these improvements, and, more particularly, to permit the indirect benefits to be established and recognized. A large part of any industry of such character and of such recent and rapid growth as the domestic beet-sugar industry, is necessarily new, and it is in the newer sections of its development, and in those where it has not yet been, but probably could be, established successfully, and not in the few older districts, that temporary protection is most justifiable, if at all. But any system of tariff protection must protect all; bounties for a limited number of years might be sound, economically, but the question is: Are they expedient politically?

The fundamental difficulty of United States sugar-producers as compared with those of other countries is in the agricultural labor cost. This is due to the extremely large proportion of unskilled hand labor required in beet culture. In extensive agriculture upon comparatively cheap land, such as cereal production, where most of the labor is performed with machinery and horses; also in our manufacturing industries where most of the processes are carried on with superior machinery, the labor cost per unit of product is comparatively small, even though higher wages are paid than in other countries. In such industries American capital, invention, and management need ask no odds of any competing country. But the case is radically different with beet culture where half to three-fourths of the work is done by hand and, hence, where high wages have much more effect in raising the unit cost.

In Europe, labor is relatively abundant and cheap, and land is relatively scarce and high; in the United States, the reverse is true. This is the fundamental reason for Germany's advantage in beet-sugar production. Cuba's labor may not be so much cheaper, especially when effectiveness is considered, but her soil and climatic conditions put her upon even better terms for competing in open markets.

Probably the United States, or at least many parts of it, will be better adapted to beet-sugar production as intensive agriculture displaces extensive, as the necessity for cultivating the soil, rather

than exploiting it, is forced upon us. Possibly the present experiment, as regards some sections, has been taken before its proper time. If so, they should not be subsidized indefinitely by hot-house protection. The chief question is not whether reductions should be made, but how rapidly they should be made. To determine this with any degree of accuracy would require a really expert non-partisan tariff commission co-operating with agricultural experts and the sugar-producers in the making of comprehensive investigations extending over a series of years to ascertain the facts in the case. Even then, only an approximation could be reached, but an approximation worth while.

The facts that are available indicate that the proposed reduction may be rather rapid, taking all things into consideration. The United States now has a sugar industry, established at great expense, which, though new as to most of its area, is sufficiently extensive to form the basis for comprehensive experiments and investigations. Press of other matters, lack of funds and facilities, and inertia, on the part of both producers and the United States Department of Agriculture, have thus far prevented the making of such investigations. True, we have made many experiments and great progress, but much more is possible and should be undertaken at once before we threaten by too rapid tariff reductions to condemn too much of the costly experimenting apparatus to the junk heap.

The thoughtful student cannot well help considering whether or not it is a step backward to endanger such an industry unduly, or even to check its progress unduly, in view of our gradual transition from extensive agriculture. Our urban population is growing apace, our industrial system is expanding, our exports of wheat and such agricultural products are destined to discontinue and exports of manufactures to increase.

The pending sugar schedule, if adopted, and continued as a permanent policy, will probably injure Louisiana and Hawaii producers more rapidly and severely than domestic beet-sugar producers. Hawaii, a one-crop and one-industry territory, already artificially stimulated to the limit, would be fortunate if it escaped bankruptcy. Free sugar would probably mean wholesale con-

fiscation there. Porto Rico would suffer much less on the whole, though it would not develop into a second Hawaii as it might under the present rates. For the Philippines, the change would have its greatest effect upon future developments, rather than upon vested interests. Even immediate free sugar could not reduce the high cost of living by more than about \$1.30 per capita each year. Of course, this much is not to be despised, nor much to boast of.

One point further should be considered. The rates now proposed probably would not force a large proportion of the domestic beet-sugar factories out of business if Cuban and other foreign production remained stationary, or even if they do increase, if sufficient improvements and indirect advantages could be established and generally recognized. But, if it is assured that Cuban and all other tropical sugar can have permanent free entry to the United States markets within three years, the probabilities are that American and European capital in tropical territories will exploit their great resources so rapidly, that most, if not all, of both domestic industries, cane and beet, will be abandoned within a few years. This movement would not be all at once, it would even be delayed by considerations of possible reversal of political power and policy. If not very gradual, it would tend to cause stagnation and depression in all the districts of the United States most affected, not directly affecting the farmers most, necessarily, but the entire business of the country towns, somewhat as reversion from cultivated crops to sheep-growing has done elsewhere. Of course, these pangs of transition would scarcely be felt directly in the East.

But to state these probable results is not to argue that it is economically sound to continue the present duties. The various interests have already had considerable warning of possible changes. Three more years of dutiable sugar, as is proposed in the pending bill, would allow much more time for adjustment. The proposed reduction is a move in the proper direction and it may not cause over-severe pangs of transition. It seems probable that it will, however, and it would appear that twice as long a period of transition would be better for all interests concerned, including the great

masses of non-sugar producers, and even considering the fortunes of the Democratic party.

The promises and sincere attempts of the latter to reduce the tariff and the high cost of living are praiseworthy and in the right direction, but the masses of the people have been led, as is usually the case, to expect more from such legislation than is possible. Reduction in the tariff can lower high prices, but by a ridiculously small amount as compared with the extent of the rise in prices since 1897. Factors other than the tariff are more fundamental in this connection. The present administration may well pray that unfavorable seasons and scant crops may not accompany its legislative enactments and that the apprehensions and uncertainties attending tariff transition may not topple over an insecure financial and industrial structure. Conditions have changed considerably in the two decades since the Democrats last revised the tariff; human psychology is still much the same.

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